

AMENDMENTS TO THE CLAIMS

1.-6. (Cancelled)

7. (Currently Amended) An apparatus comprising:

a plurality of ports each adapted to receive Ethernet packets;

a data-link layer switch controller, when one of the Ethernet packets comprises an Internet protocol (IP) multicast packet comprising an IP multicast destination address and an IP source address, to select one or more of the ports based upon the IP multicast destination address and the IP source address;
and

a memory to store associations between IP addresses and the ports,

wherein the data-link layer switch controller is further to select the one or more of the ports based upon the associations stored in the memory,

wherein the data-link layer switch controller is further:

to identify one of the associations stored in the memory based on the IP multicast destination address and the IP source address~~+,~~ and

to confirm the association is an association between an IP address and the ports,

wherein, to confirm the association is an association between an IP address and the ports, the data-link layer switch controller is further to determine whether the association is marked as an IP multicast association, and

wherein, to determine whether the association is marked as an IP multicast association, the data-link layer switch controller is further to determine whether a flag stored in the memory and corresponding to the association is set.

8.-16. (Cancelled)

17. (Currently Amended) An apparatus comprising:

a plurality of ports each adapted to receive Ethernet packets;

a data-link layer switch controller, when one of the Ethernet packets comprises an Internet protocol (IP) multicast packet comprising an IP multicast destination address and an IP source address, to select one or more of the ports based upon the IP multicast destination address and the IP source address_{7,1}

wherein the data-link layer switch controller, when one of the Ethernet packets comprises a Media Access Control (MAC) multicast packet comprising a MAC multicast destination address and does not comprise an IP multicast

packet, is further to select one or more of the ports based upon the MAC multicast destination address₇,

wherein the selected one or more ports transmit the Ethernet packet; and

a memory to store associations between MAC addresses and the ports₇,

wherein, to select one or more of the ports based upon the MAC multicast destination address, the data-link layer switch controller is further to select the one or more of the ports based upon the associations stored in the memory, to identify one of the associations stored in the memory based on the MAC multicast destination address, and to confirm the association is an association between a MAC address and the ports,

wherein, to confirm the association is an association between a MAC address and the ports, the data-link layer switch controller is further to determine whether the association is marked as a MAC multicast association, and

wherein, to determine whether the association is marked as a MAC multicast association, the data-link layer switch controller is further, to determine whether a flag stored in the memory and corresponding to the association is clear.

18.-26. (Cancelled)

27. (Currently Amended) An apparatus comprising:

a plurality of port means for receiving Ethernet packets;~~and~~

data-link layer switch controller means, when one of the Ethernet packets comprises an Internet protocol (IP) multicast packet comprising an IP multicast destination address and an IP source address, for selecting one or more of the port means based upon the IP multicast destination address and the IP source address~~;~~,

wherein the selected one or more port means transmit the Ethernet packet;and

memory means for storing associations between IP addresses and the port means~~;~~,

wherein, to select one or more of the port means based upon the IP multicast destination address and the IP source address, the data-link layer switch controller means is further adapted for selecting the one or more of the port means based upon the associations stored in the memory, for identifying one of the associations stored in the memory based on the IP multicast destination address and the IP source address, and for confirming the association is an association between an IP address and the port means,

wherein, for confirming the association is an association between an IP address and the port means, the data-link layer switch controller means is further for determining whether the association is marked as an IP multicast association, and

wherein, for determining whether the association is marked as an IP multicast association, the data-link layer switch controller means is further for determining whether a flag stored in the memory and corresponding to the association is set.

28.-36. (Cancelled)

37. (Currently Amended) An apparatus comprising:

a plurality of port means for receiving Ethernet packets;

data-link layer switch controller means, when one of the Ethernet packets comprises an Internet protocol (IP) multicast packet comprising an IP multicast destination address and an IP source address, for selecting one or more of the port means based upon the IP multicast destination address and the IP source address, and

wherein the selected one or more port means transmit the Ethernet packet, and

wherein the data-link layer switch controller means, when one of the Ethernet packets comprises a Media Access Control (MAC) multicast packet comprising a MAC multicast destination address and does not comprise an IP multicast packet, is further for selecting one or more of the port means based upon the MAC multicast destination address τ_i

wherein the selected one or more port means transmit the Ethernet packet τ_i and

memory means for storing associations between MAC addresses and the port means τ_i

wherein, for selecting one or more of the port means based upon the MAC multicast destination address, the data-link layer switch controller means is further for selecting the one or more of the port means based upon the associations stored in the memory means,

wherein, to select one or more of the port means based upon the MAC multicast destination address, the data-link layer switch controller means is further for identifying one of the associations stored in the memory means based on the MAC multicast destination address, and for confirming the association is an association between a MAC address and the port means,

wherein, for confirming the association is an association between a MAC address and the port means, the data-

link layer switch controller means is further for determining whether the association is marked as a MAC multicast association, and

wherein, for determining whether the association is marked as a MAC multicast association, the data-link layer switch controller means is further for determining whether a flag stored in the memory means and corresponding to the association is clear.

38.-46. (Cancelled)

47. (Currently Amended) A method for a data-link layer switch comprising a plurality of ports, the method comprising:

receiving an Ethernet packet on one of the ports;

when the Ethernet packet comprises an Internet protocol (IP) multicast packet comprising an IP multicast destination address and an IP source address,

selecting one or more others of the ports based upon the IP multicast destination address and the IP source address;

transmitting the Ethernet packet from the selected one or more ports;

storing associations between IP addresses and the ports;

wherein selecting one or more of the ports based upon the IP multicast destination address and the IP source address comprises:

selecting the one or more of the ports based upon the associations,

identifying one of the associations based on the IP multicast destination address and the IP source address, and

confirming the association is an association between an IP address and the ports,

wherein confirming the association is an association between an IP address and the ports comprises determining whether the association is marked as an IP multicast association, and

wherein determining whether the association is marked as an IP multicast association comprises determining whether a flag corresponding to the association is set.

48.-56. (Cancelled)

57. (Currently Amended) A method for a data-link layer switch comprising a plurality of ports, the method comprising:

receiving an Ethernet packet on one of the ports;

when the Ethernet packet comprises an Internet protocol (IP) multicast packet comprising an IP multicast destination address and an IP source address,

selecting one or more others of the ports based upon the IP multicast destination address and the IP source address;

transmitting the Ethernet packet from the selected one or more ports_{*i*};

when the Ethernet packet comprises a Media Access Control (MAC) multicast packet comprising a MAC multicast destination address and does not comprise an IP multicast packet,

selecting one or more of the ports based upon the MAC multicast destination address and transmitting the Ethernet packet from the selected one or more ports;

storing associations between MAC addresses and the ports_{*i*};

wherein selecting one or more of the ports based upon the MAC multicast destination address comprises:

selecting the one or more of the ports based upon the associations, identifying one of the associations based on the MAC multicast destination address, and

confirming the association is an association between a MAC address and the ports,

wherein confirming the association is an association between a MAC address and the ports comprises determining whether the association is marked as a MAC multicast association, and

wherein determining whether the association is marked as a MAC multicast association comprises determining whether a flag stored in the memory and corresponding to the association is clear.

58.-64. (Cancelled)

65. (Currently Amended) A computer program stored on a computer readable medium embodying instructions executable by a computer for a data-link layer switch comprising a plurality of ports, said instructions comprising:

when an Ethernet packet received on one of the ports comprises an Internet protocol (IP) multicast packet comprising an IP multicast destination address and an IP source address,

selecting one or more others of the ports based upon the IP multicast destination address and the IP source address;

causing the data-link layer switch to transmit the Ethernet packet from the selected one or more ports, further

comprising: storing associations between IP addresses and the ports, and

wherein selecting one or more of the ports based upon the IP multicast destination address and the IP source address comprises selecting the one or more of the ports based upon the associations, and

wherein selecting one or more of the ports based upon the IP multicast destination address and the IP source address comprises identifying one of the associations based on the IP multicast destination address and the IP source address; and

confirming the association is an association between an IP address and the ports,

wherein confirming the association is an association between an IP address and the ports comprises determining whether the association is marked as an IP multicast association, and

wherein determining whether the association is marked as an IP multicast association comprises determining whether a flag corresponding to the association is set.

66.-74. (Cancelled)

75. (Currently Amended) A computer program stored on a computer readable medium embodying instructions executable by a computer for a data-link layer switch comprising a plurality of ports, said instructions comprising:

when an Ethernet packet received on one of the ports comprises an Internet protocol (IP) multicast packet comprising an IP multicast destination address and an IP source address,

selecting one or more others of the ports based upon the IP multicast destination address and the IP source address~~;~~, and

causing the data-link layer switch to transmit the Ethernet packet from the selected one or more ports~~;~~;

when the Ethernet packet comprises a Media Access Control (MAC) multicast packet comprising a MAC multicast destination address and does not comprise an IP multicast packet,

selecting one or more of the ports based upon the MAC multicast destination address~~;~~; and

causing the data-link layer switch to transmit the Ethernet packet from the selected one or more ports;

storing associations between MAC addresses and the ports,

wherein selecting one or more of the ports based upon the MAC multicast destination address comprises selecting the one or more of the ports based upon the associations,

wherein selecting one or more of the ports based upon the MAC multicast destination address comprises identifying one of the associations based on the MAC multicast destination address and confirming the association is an association between a MAC address and the ports,

wherein confirming the association is an association between a MAC address and the ports comprises determining whether the association is marked as a MAC multicast association, and

wherein determining whether the association is marked as a MAC multicast association comprises determining whether a flag stored in the memory and corresponding to the association is clear.

76.-78. (Cancelled)